Draft Delta Plan Performance Measure Fact Sheet

Delta Plan Chapter: Chapter 4 – Protect, Restore, and Enhance the Delta Ecosystem

Performance Measure 4.XX: Increasing Floodplain Connectivity in the Yolo Bypass

Expectation: Increase in Yolo Bypass spring time inundation recurrence frequency, duration of inundation, and the area of floodplain habitat inundated.

Rationale: The Yolo Bypass (Bypass) provides excellent habitat and is a food source for native fish such as Chinook salmon (Opperman 2009). The Bypass is currently inundated only once every several years. Increasing the frequency and duration of floodplain connectivity is a component of the Delta Plan strategies of creating more natural functional flows, and restoring habitat.

Metrics: 1. Duration of inundation
2. Depth of inundation
3. Extent of area inundated
4. Rating curve (relationship between stage and discharge
5. Number of times area is inundated annually
6. Month inundation

Baseline/Reference Conditions: If the expectation is to see a minimum number of annual flooding/inundation, the reference condition is the adoption of the Delta Plan. If the expectation is to see an increase in the number of inundation events or an increase in inundation area, then previous observations would serve as the baseline. Between 1984 and 2007 the Yolo Bypass flooded intermittently, only meeting NMFS biological opinion requirements for 14 consecutive days of inundation once every 10 years (DWR 20011).

Methodology: Both river discharge and river stage will be measured for relevant gage stations for the Yolo Bypass. The California Data Exchange Exchange Center hosts discharge and stage data for measurement stations at Freemont Weir, Yolo Bypass, and Lisbon for hourly and daily time periods. This data will be used to assess flood variables and recurrence frequency on an annual and three-year rolling basis. Field studies will be used to refine the relationship between these metrics and flood inundation variables and set targets based on best available science.

References:

Opperman, J. J., Galloway, G. E., Fargione, J., Mount, J. F., Richter, B. D., & Secchi, S. (2009). Sustainable floodplains through large-scale reconnection to rivers. *Science*, *326*(5959), 1487-1488.

California Department of Water Resources. 2011. Sacramento River at Fremont Weir (Real-Time Data for Water Years 1985-2008). California Data Yolo Implementation Plan 4 September 2012 Exchange Center. Retrieved in August 2011 from http://cdec.water.ca.gov/cgi-progs/queryF?s=Fre.